

DCRA Sanitation Planning Guide

Task 4 Sanitation Planning Guide

Draft

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Department of Community and Regional Affairs

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Things are changing. People are starting to be more involved. People are trying to work together. I think that is the most important thing—working together. If we work together then we can do a lot of things. —Village Resident

It has been shown around the State that sanitation systems planned without community involvement run into problems. Many systems have made life in rural communities more difficult by putting undue pressure on community governments and residents. The failures among planning efforts statewide typically have one common thread, a lack of community involvement in the process.

Successful sanitation projects fully involve the community from the beginning planning stages to designing, constructing and daily upkeep. Successful plans are lead the community, with assistance from engineers or consultants, to develop a sanitation system that works for the community. Even after the plan is completed, successful processes keep the community involved through the design, construction, and operation of the sanitation system.

Recently there has been movement from agencies and communities towards communities taking control of planning their sanitation projects. More and more communities are interested in having a stronger voice in planning their systems and more and more agencies are recognizing the importance of that trend. Everyone has come to recognize that the increased

local input usually leads to technically and financially suitable facilities that work for communities.

Hopefully, the future will see more successful sanitation plans and projects and communities will have more of a sense of “ownership” in sanitation systems because they will have lead the planning process.

If you are reading this guidebook, and you are a resident of a rural Alaskan community, you a part of this trend. However, you might be saying to yourself, “it sounds good—communities having more control over what gets but how do I go about leading the planning effort in my community.” This guidebook is intended as a tool to help you understand what it takes to conduct a sanitation master planning process, so that you will be able to lead the planning efforts in your community.

Time and money can be wasted because of inexperience with successful planning methods. This guidebook will hopefully provide you with the information on sanitation system planning and techniques for community involvement so that your plan is a successful one.

The Purpose of This Guidebook

We have all heard stories about sanitation systems that have been placed in rural communities. Sometimes instead of making life easier for residents, the systems have made life more complicated. Many times communities are left with a system that they are not equipped to handle; is too complicated to operate and maintain, can not be easily upgraded to supply new homes and buildings, or has disrupted traditional lifestyles. Usually, these sorts of problems stem from the lack of community involvement in planning the sanitation system.

The primary intent of this guidebook is to give you, the community leaders and residents, ideas and tools so that the community can be involved in each step of a sanitation system planning process. Regional groups, agency engineers, and engineering/planning consultants can also use the guidebook to help understand community issues and concerns related to sanitation system planning.

We probably spend a quarter of our life planning. We plan for hunting trips, vacations, and what we are going to have for dinner. In Alaska especially, where life can be unpredictable, we know the importance of planning. Agencies and other interested organizations recognize that community-based planning for sanitation facilities is an important first step in providing rural areas with suitable water and sewer facilities. Additionally, rural communities understand that to have valuable local input that leads to designing technically and financially suitable facilities, planning is important. This guidebook should help you understand the importance of public involvement, steps or phases in planning, designing, and constructing a sanitation system, and how your community's involvement.

What is planning?

Planning is an activity that affects just about every aspect of our lives. It is a process that blends public involvement, technical information (data, issues, goals, objectives, alternatives, implementation measures), and legal principles, (statutes, codes, ordinances). No matter what we plan for, by wisely exerting time, effort, and expenses in the beginning, we usually end up better off in the end.

Planning is:

- *about setting priorities and solving problems,*
- *a way to control your future development rather than having it control you,*
- *a communication tool that helps determine a community's wants and needs,*
- *a way to incorporate traditional knowledge,*
- *an many-sided approach that promotes creativity.*

“Why plan for sanitation projects? I know what we need. Let’s just build it.”

Developing a sanitation plan requires that your community study the past, deal with the present, and prepare for the future. Good planning builds better projects and better communities. Almost anything can be “designed” or “built.” A project’s success however, almost always is based on how well it is planned, how well it incorporates community desires, and how well it considers the limits of the environment.

- **Sanitation planning can save money.** Mistakes can be made by not thinking about the future that take time and money to fix. Wisely planning system upgrades keeps the community from making expensive mistakes before they happen.
- **Planning a sanitation system encourages community planning as a whole.** While planning sanitation system upgrades, everyone can think about the future of the community (where housing will be, where economic development activities may occur, etc...) to make decisions about where the community is going.
- **Planning unifies and strengthens communities.** Preparing a good sanitation plan promotes community involvement and can bring people together to plan for the future. As you know, a unified community is a strong and healthy community.

Who should be involved in sanitation planning?

EVERYONE that could be affected by the proposed project or has a “stake” in the project outcomes (i.e. stakeholders): Community members, agency representatives, and invited organizations, should be involved in sanitation system planning. However, since the sanitation system ultimately belongs to your community, and since your community knows its wants and concerns best, the most important stakeholders in

- **Planning a sanitation system leads to community action.** By planning the future, your community will work towards resolving old issues and identifying and achieving new goals. Through thorough analysis, the gaining of knowledge, and resolving conflicts that the planning process encourages, a good plan helps the community meet the future head on.

- **A sanitation plan is a tool for obtaining funding for projects.** A well-thought out plan demonstrates that you have identified your resources, agreed upon a future direction, and have described solutions that will work for your community – all things funding agencies are concerned with.

- **Planning can promote economic development.** With a good sanitation plan and system in place, your community is better able to handle economic development activities.

You can do it!

Planning for your sanitation system upgrades is a process that the community should lead. You know what is important to your community and where your community wants to be in the future. Hopefully, this guide can help you get there.

How to Use this Guidebook

Successfully completing a sanitation master plan for your community requires an approach that ensures that the plan expresses your community's desires and fits your situation. The approach used in this guide is intended to be driven by the community while bringing in the skills of planners, scientists, and engineers that might be from outside your community.

Sanitation Planning Process

The planning approach put forth in this guide identifies and outlines the key steps for creating a successful sanitation master plan. The approach is organized in four distinct phases: (1) Collecting community information; (2) Identifying sanitation alternatives; (3) Selecting and refining a preferred alternative; and (4) Implementing the plan. Within these main phases of developing a plan, several specific tasks have been identified.

The guide is set up in a logical order to take a planning project from start to finish. However, planning is meant to be a flexible process and should be responsive to local needs and issues. Therefore, do not restrict yourself to following the steps exactly as they are laid out if that does not work for you. The main idea is that in most sanitation planning efforts each of these steps must be taken at some point or another. Depending on the community, you may find that some of these steps are easy and can be breezed over, while in another community, the same step may be contentious and time consuming. Use the guide in whatever fashion works best for you.

Other Resources

In addition to this guidebook there is an appendix document which includes useful information and materials that support the use of the guidebook. Included in the appendix is a glossary of sanitation engineering terms, sample request for proposals (RFP), a model plan outline, useful exercises to use for community participation, guidance on how to tie the planning process to cultural and traditional values, worksheets, technical sanitation engineering

Key Planning Steps


Phase	Planning Terminology	What does it really mean?
1. Collecting Community Information	<ul style="list-style-type: none"> Identify community issues, goals, and needs Conduct a background study Forecast future community growth 	<ul style="list-style-type: none"> What needs fixing? Where have we been? What is here? Where are we going? Where do we want to go?
2. Identifying Alternatives	<ul style="list-style-type: none"> Develop a range of alternatives Evaluate a range of alternatives 	<ul style="list-style-type: none"> Identify improvements that work for us. Get the information to help us decide what we really want.
3. Preferred Alternative	<ul style="list-style-type: none"> Select and refine a community preferred alternative Develop a draft master plan document Develop a final master plan document 	<ul style="list-style-type: none"> Choose the system that we want. Put our decisions in writing so everyone else will know what we want.
4. Implementing the Plan	<ul style="list-style-type: none"> Construct the preferred alternative Successfully operate and maintain the utility. 	<ul style="list-style-type: none"> Build our water and wastewater improvements Keep our system running

information, a bibliography, community assessment information, and a list of resources and contacts should you need assistance.

Are You Ready to Plan?


Preplanning: The Keys to Success.

Planning takes time and effort. Before you expend your time and resources you should decide whether your community is ready to plan. To help insure the success of your planning effort, there are a number of important keys project components that should be in place before you start can

 **Commitment.** The first key to ensuring that your plan will ultimately be successful is to have commitment from your community's leadership and residents. The commitment has to come from within your community, in other words the reason for wanting to develop the plan has to be driven by your community and backed


“You’ve got to have people that are committed at the community level to make it happen. That’s what makes it happen, not the document, it’s the community.” – VSW Engineer.

by your leaders and residents. If the reason for doing your plan is only because some agency thought it would be a good idea, and your community is indifferent or against the plan, you may as well stop now. Successfully completing your plan will take time and energy from members of the community. Without support and backing, your plan is likely to flounder despite your best efforts.

 **Start Public Involvement Now.** What, you haven’t even started the planning process and you already have to involve people? The answer is yes. Not only should you have support from community leaders to conduct the plan but there should be a high level of interest in the plan by the community residents before getting too far into the planning process. Involving people early, before the process even gets going, helps people feel ownership in the plan. Let them ask questions and incorporate their suggestions into the process. Getting people involved early is crucial to letting them know you are going to use a legitimate planning process that

cares about what they think. Any hint that decisions have been made before people know the plan is occurring will make them feel that their input is unimportant or that you already have things decided. Use early public involvement to inform community residents about the upcoming planning process, why the plan is being done, and how they can be involved. You can also use the early public involvement to identify interested members of a planning workgroup or citizen advisory committee. Suggestions for involving residents might be a kickoff newsletter, a survey, or a meeting. Whatever method you decide on, make a big deal about it, make it special. See more in the “Public Involvement” section of this guide.

“You might want to say on the first page—if you’re not committed, throw this guide away.” - Agency Engineer

 **Project Champion.** Before you begin planning, you should identify a project champion. A project champion is a local resident, city staff person, or leader who is designated by the community to take responsibility for running the day-to-day tasks involved in the planning process. The project champion serves as the staff person to the workgroup or Council. Their main responsibility is to be the driving force behind the scenes, making sure the things that need to get done, get done. The project champion acts as the plan’s cheerleader. For example, it is the project champion that calls around to make sure there is a quorum of the Council when important decision need to be made. It is the project champion that can respond to residents interested in the plan or send out the maps that the engineer asked for last week. The role of being project champion can be a time-consuming effort. You should consider paying the project champion for their efforts. If for some reason the project champion leaves during the process replace them.

You’ve got to have one guy you can talk to, he can talk to you--we’d better do this--you know, it’s a team effort.

– VSW Engineer.



One of the most common ways of public involvement in the villages is through informal discussions—at the post office, at the store, in your office two days after the meeting.... The project champion should keep a notebook to record people's comments and concerns gathered through this traditional way. Remember--comments can remain anonymous.

focussing on a sanitation planning process? If your community has too many other projects going, or is otherwise distracted with other issues, now may not be the time to start planning for water and wastewater systems. For example, if sanitation is the community's focus, but the main issue is solid waste disposal, you may want to consider tackling solid waste disposal issues separately from water-wastewater planning. Dividing your time between two issues tends to give short shrift to the secondary issue. Wait until the community can focus on the water-wastewater issues, giving them the time and attention they need.

Case in Point. *"After the flooding on the Koyukuk River, there was a flurry of activity that occurred. Somebody decided that comprehensive plans needed to be developed for several villages that were affected by the flood. Comprehensive plans were completed and the documents exist, but I don't think the communities were involved with the decisions that are in those documents. Consultants were asking the community to make decisions about what the community should look like 30 years from now—shall we relocate from our present location, etc.? But the plan was done during a time that people were uprooted from their homes, and had lost many of their personal effects, and really had a hard time concentrating and thinking about the way the village should be in the future. It was just a bad time to try to do a plan."* --Regional Health Corporation Engineer



Timing. Is the timing right to start your plan? Are water or wastewater issues at the top of your community agenda? Are there distractions occurring that might keep people from



Heading off Potential Conflicts. Take a look at the political situation in the community. Are the various political entities getting along? Do you think that as a community you will be able to come to consensus on a plan? If your community has a history of internal conflict or groups of residents with strong but opposing views, the success of your plan may be in jeopardy before you even begin.



Tips for resolving conflicts:

- Separate the people from the problem. Work together to attack the problem, not each other.
- Focus on the real underlying interests and values being advanced.
- Involve all disputants in working through the conflict.
- Establish a resolution process that all parties can agree to.
- Invent options for mutual gain.
- Think creatively.

One way of deciding whether to proceed with your plan is to conduct a **conflict assessment**. A conflict assessment is a tool for bringing issues that could threaten the stability of the political situation and in turn affect the success of your plan out into the open. Sometimes just bringing the answers to conflict assessment questions into the open can help resolve the issues or at least keep them at bay as you work through the plan. Other times, exploring the answers to a conflict assessment may help you decide that your community is not ready to begin an involved planning process.

If there are issues that have caused or are causing conflict in our community, ask yourselves the following conflict assessment questions:

- ✓ Are the issues in dispute easy to define?
 - ✓ Are the disputing parties readily identifiable?
 - ✓ Does the conflict have little impact on your community's ability to make decisions, especially regarding sanitation improvements?
 - ✓ Is the dispute over things *other than* core values (i.e. defining constitutional rights or cultural values)?
 - ✓ Is there hope for a negotiated tradeoff?
 - ✓ Does each party have a legitimate spokesperson?
 - ✓ Is there a relative balance in power between the parties? (In other words, is no one more likely to control the results?)
 - ✓ Is there a likelihood of continuing relations between the parties?
- Adapted from "Dispute resolution: A Handbook for Land Use Planners and Resource Managers."

If the answers to most of these questions are yes the chance of working through the conflict are good. Exploring the answers to these questions and sharing that information with anyone assisting you in your planning or engineering efforts can help your chances for a successful planning effort.



ARE YOU READY TO MOVE ON?

- ☐ Are community leaders and residents commitment to the project?
- ☐ Have you considered the timing of starting a plan now? Are water and wastewater issues at the forefront?
- ☐ Have you identified a project champion?
- ☐ Have you had initial public involvement efforts? Is there awareness and interest in the community about the plan?
- ☐ Is the political situation such that groups in the community will be able to come to consensus on important decisions?

If so, you're ready to move on to the next phase of planning your community's sanitation system upgrades.

Public Involvement—Why is it important?

At a meeting, a woman was heard complaining about her village's new sanitation system. She said, "They built the pipes right where we had our four wheeler trail. Now everyone is upset because we have to go a long way around to get anywhere." As unimportant as this problem may seem to some, it shows that the village's residents may not have been involved in planning the sanitation project and that there was not entire community support for the results.

With public involvement:

- ◆ Many different opinions, expertise, and experiences combine to help the community successfully achieve its goals.
- ◆ The community supports and has a long-term commitment to the plan.
- ◆ When *everyone* has been involved with planning, *everyone's* issues are heard, and plans will take *everyone's* needs and concerns into account.

Without public involvement

- ◆ The proposed project may not be implemented.
- ◆ The best solution for the community, as a whole, may not be created.
- ◆ The project results may result in unsatisfied community members or division in the community.

Citizen Advisory Council or Planning Workgroup

The community should form a workgroup early in any community's planning process that adequately represents the community, state and federal agencies, and regional groups. Although, everyone should be encouraged to attend planning meetings, usually a small workgroup or council ultimately leads the planning process.

Who Should Be Involved (Stakeholders) in the Workgroup

To determine who should be involved in the workgroup or "who has a stake" in a community planning process, invite everyone who may be:

- ✓ Interested in the outcome of the group's efforts.
- ✓ Affected either directly or indirectly by in the planned action.
- ✓ Know something about the planned action.

An initial, highly-publicized community meeting should occur to explain the workgroup's missions and determine who will be involved. The group should gain community, regional, and agency support by inviting every potential **stakeholder**, because if essential participants are missing, problems will likely occur later. At the first meeting, people important to the planning effort should be determined, a list with contact information should be drafted, and the next meeting should be scheduled.

Who Needs to be Involved? (Potential Stakeholders)

Community Members:

- ✓ Interested Folks and Homeowners
- ✓ Allotment Owners
- ✓ Tribal Council
- ✓ Village Corporation
- ✓ Tribal Administrator
- ✓ Elders
- ✓ School
- ✓ Community Groups
- ✓ Store and Other Businesses
- ✓ Health Clinic
- ✓ Utilities
- ✓ Plant Operator
- ✓ Village Environmental Health Workers

Regional Representatives

- ✓ Regional Corporation
- ✓ Regional Non-profit Corporation
- ✓ Housing Authority

Agency Representatives:

- ✓ Public Health Service
- ✓ Alaska Department of Environmental Conservation, Village Safe Water Program
- ✓ Army Corp of Engineers
- ✓ Environmental Protection Agency
- ✓ US Fish and Wildlife Service
- ✓ AK Dept. of Fish and Game

Techniques for Great Public Involvement

- ★ Have a public meeting in conjunction with a potluck/doughnuts/good food. Invite community dancers or a speaker to open the meeting.
- ★ Put up large colorful flyers throughout the community (post office, store, school, airport) inviting everyone interested.
- ★ Personally invite people. Tell them their input is essential (It is!) and will directly affect the plan's outcome.
- ★ Plan meetings at times when nothing else is going on (you may not have many attendees during the Super Bowl or a fishing opener, for example)
- ★ If someone doesn't show for the first meetings don't count him or her out. Invite everyone to every meeting—some people need more time to warm up to the process.

actions, or alternatives to the public, at which time other members of the community can comment and either approve or reject the group's decisions.

"In '73, when the first water treatment plant was built in Tanana, the engineer took all kinds of pictures, and there's this picture of Maxie, Louis Grant, I think Peter Charles, and Johnny Albert. They were little boys then. And the caption says, "Public Meeting." And there was just these four little boys there, because they were curious. They [the engineers] had maps and everything on the wall, and the community input was just, these four little guys there."

—Village Leader

The Role of those Involved

Workgroup members have special responsibilities. They must:

- ◆ Represent their interest by voicing the knowledge and opinions of those they represent at workgroup meetings.
- ◆ Bring information, decisions, and questions from the workgroup back to those they represent.
- ◆ Actively attend workgroup meetings and complete special projects, as necessary.
- ◆ Represent the workgroup by listening and answering questions outside of meetings. For example, if stopped at the store, the representative should be prepared to listen and respond.

At What Points is Community Participation Needed?

In community planning, public participation is needed during all planning phases. There are many ways to involve the entire community. At a minimum, the planning workgroup should ask for public comment during each stage of planning to determine community wants and needs. The workgroup should present suggestions, decisions,



Techniques for Public Involvement

Public Meetings

Public meetings are a good way to present information to the public and obtain feedback from community members, and are one of the best ways to involve everyone in community planning. Public meetings should be flexible and held throughout the planning process to address specific issues or phases of planning. For example, a public meeting should be held in the beginning of a planning process to get early input from residents. Additionally, public meetings should be held at specific phases of the planning process, such as when the planning workgroup is gathering traditional and local knowledge, developing community planning alternatives, or selecting a preferred alternative to implement. A public meeting should be advertised to attract all interested community members. During a public meeting, a facilitator may be needed or appropriate, and brainstorming, visioning, charrettes, or large group response techniques may be used (see below)

Involvement Techniques for Meetings

Meeting Technique 1. Facilitation

A facilitator is a group leader who helps a group work towards a decision based on general agreement. A facilitator should be a leader that is respected, confident, and perceptive. Sometimes an unbiased facilitator must come from outside the group or even the community, particularly if there are people or groups at the meeting that do not get along. However, if an outside facilitator is invited, he/she should be aware of community issues and culture.

Be prepared; requirements for a successful public meeting:

- ✓ Advertise for good meeting attendance.
- ✓ Consider incentives for attending the meeting (raffle, food, etc.).
- ✓ Reserve a meeting place (community center, classroom, gym).
- ✓ Develop an agenda and have an objective that the meeting should accomplish.
- ✓ Don't be overly ambitious with the agenda. Allow time for discussion. Don't overwhelm people.
- ✓ Copy handouts beforehand, provide additional information afterwards if needed.
- ✓ Provide comment sheets to allow those that won't speak at a meeting to express their views.
- ✓ Provide a facilitator or meeting chairperson.
- ✓ Write and display important points on a blackboard, flip chart, or with an overhead projector.
- ✓ Have a secretary or note taker record the discussions and provide them to interested participants.

"Another thing that bothers me is that everybody seems to be in a rush like there is no tomorrow. There are a lot of tomorrows. We are very patient people. We will sit there and wait and wait." –Village Resident

A FACILITATOR SHOULD PROVIDE A GROUP WITH LEADERSHIP. HE/SHE SHOULD:

- ◆ **Focus:** Provide a focus for the group.
- ◆ **Stimulate:** Encourage constructive debate between group members.
- ◆ **Support:** Bring out information from quiet members of the group and allow new ideas to be submitted.
- ◆ **Participate:** Promote new discussion when the group is interacting poorly or off the subject.
- ◆ **Team Build:** Form a close, productive team.

A FACILITATOR SHOULD ACT AS A REFEREE. HE/SHE SHOULD:

- ◆ **Regulate:** Maintain order & discourage participants from talking at the same time or dominating the meeting.
- ◆ **Protect Members:** Ensure that all comments are treated equally and that no one is “put down” for their input.
- ◆ **Deal with Problems:** Control problem people within the group and allow everyone to participate freely.
- ◆ **Keep Time:** Adhere to the meeting timetable to ensure completion of the agenda.

A FACILITATOR SHOULD BE NEUTRAL. HE/SHE SHOULD:

- ◆ **Be Sensible:** Take a detached look at the discussion and view each point on its merits.
- ◆ **Encourage Feedback:** Promote discussion of each point raised by all members of the group.

Meeting Technique 2. Brainstorming

Brainstorming is a simple way to get as many solutions to a problem as possible. It is a process where a person or group writes down as many solutions to a problem or ideas as possible in a set amount of time. Brainstorming sessions are frequently used when a group is starting a planning process or a new phase of planning. A group should have brainstorming sessions to come up with possible solutions to problems without criticism or evaluation. A

freethinking atmosphere will encourage bright ideas that may seem outrageous at first and outstanding in the end. A brainstorming session will also help reduce conflict by helping participants see other points of view and possibly change their perspective on problems. Finally, brainstorming sessions are beneficial because all participants have an equal status and an equal opportunity to participate.

BRAINSTORMING SESSIONS RULES

- ❑ NO CRITICISM.
- ❑ WILD IDEAS ARE WELCOME.
- ❑ THE GREATER THE NUMBER OF IDEAS THE BETTER.
- ❑ COMBINATIONS AND IMPROVEMENTS TO IDEAS ARE EXCELLENT.
- ❑ EVERYONE IS ENCOURAGED TO CONTRIBUTE.
- ❑ LISTEN AND CONTRIBUTE.

Charrette Steps

- Step 1: Define issues to be resolved.
- Step 2: Analyze problem and alternative solutions.
- Step 3: Interpret issues in small groups.
- Step 4: Develop proposals to respond to issues.
- Step 5: Develop alternative solutions.
- Step 6: Present and analyze final proposal(s) to the larger group.
- Step 7: Agree upon approach to be taken

Meeting Technique 3. Charrettes

A **charrette** is a quick paced planning technique in which a group of people concentrate on a specific problem and its potential solutions. Essentially, a large or general problem is broken down into small manageable pieces. Small groups work on each separate piece before coming back together into a larger group. The charrette's leader brings out all points of view from concerned community members, agency representatives, and experts within a set time limit. Participants intensely work together to reach a resolution. Charrettes can start a planning process and create guidelines for community action. They can be used for specific projects, such as planning sanitation upgrades, or as a first stage in the planning process leading to a community master plan. A charrette may last a morning or several days. Since a high level of organization and discipline is required in a charrette, a person experienced in the process should lead a charrette.

Meeting Technique 4. Large Group Response Exercise

The **large group response exercise** is a way to quickly gain, display, and summarize responses of a large group of people to a set of questions. It can be successfully used in public meetings with groups up to several hundred people. The benefits of the large group response technique is that it is quick (a session usually lasts 45-90 minutes), inexpensive, easy, and can be documented.

A LARGE GROUP RESPONSE EXERCISE INVOLVES FIVE STEPS:

Step 1 Questions and responses: The group is presented with the first of three (or so) questions and given three minutes to respond on a sheet of paper. This step is continued for each question.

Step 2 Most Important Responses: The group is given three additional minutes to select and mark their "most important responses" to each question.

Step 3 Wall Walk: Members of the group visit flip charts set up on side of the room and write their "most important responses" on the wall. Members are encouraged to write their responses on flip charts where similar ideas have been written.

Step 4 Summary: The group moderator presents the summary of the responses to each question and the group may want to discuss the results.

Step 5 Post-Exercise Analysis: The group may read the responses to get informed about other's ideas, draft key words for the responses, or critique the content of the responses. All sheets of paper can be collected and tallied to provide additional information.

Sample Questions for Large Group Response Exercises for Sanitation Planning:

- What is our community's biggest sanitation problem?
- What should the planning workgroup consider when planning sanitation upgrades?
- Who should be involved in planning our sanitation system?
- How do you see our sanitation system in the future?
- What are the most important aspect of our community that we should consider when planning our sanitation system?

Surveys

A survey can be an effective method to determine public opinion and can be useful in community planning efforts. Surveys are usually given by interviewers or through written questionnaires. Surveys can include multiple choice questions or open-ended questions (like short answer). When a community is too large to survey everyone, a representative group of people can be questioned about their feeling on plans in their hometown. Surveys can be useful in community planning efforts. Voluntary surveys do not put people “on the spot” and may be a good way to get an idea of general attitudes outside the public meeting process. Survey questions or results can be misunderstood, however, or poor memory can cause errors in gathering data through survey answers. Sometimes the people who respond to surveys do not adequately represent the community. If the community is small enough, you might consider surveying everyone to determine the entire community’s views and to allow everyone to feel respected.



Consider hiring someone locally from your community to administer the survey or conduct the interviews. People are generally more receptive and you will usually get better, more complete information.

Interviewing

Unlike surveying at random, where many people are asked questions to determine the opinions of the community as a whole, “intensive” interviewing, of key people who have a special knowledge of an event or process, is a helpful way to gather data. Some of the best information related to community planning could come from people who may be unable or unwilling to attend public meetings or respond to written questionnaires. Elders or long-time community leaders may have traditional or local knowledge that could be important in the community planning process.

The Survey Process:

- Stage 1:** Determine what information is needed and whether a survey is the best way to get the information.
- Stage 2:** Make a survey timeline and budget.
- Stage 3:** Determine what is already known.
- Stage 4:** Determine how many people to question to get an accurate representation of the community.
- Stage 5:** Design the survey by writing well thought out questions.
- Stage 6:** Test the survey to determine whether it is easily worded.
- Stage 7:** Select and train interviewers if the survey is done face to face or over the phone.
- Stage 8:** Complete the survey.
- Stage 9:** Tally the survey results.
- Stage 10:** Analyze the data and report the findings.

Special considerations must be taken when interviewing people in the community. The interview should start with small talk, thanking the person for taking the time to answer questions, and then should move on to business. The interviewer should ask simple, factual questions in the beginning and move towards more complex ones. Open-ended questions usually work best. All the questions should be prepared beforehand and should be simple, short, and clear.

Communication Styles and Techniques

Sometimes meetings among community members can be difficult. Participants may be quiet or shy, overly talkative, or downright disagreeable. However, there are ways to deal with all personality types so that everyone can be heard. A quiet person can be encouraged to speak by asking during a break or in private why the participant is so quiet or by suggesting that everyone takes a turn in sharing their opinion. An overly talkative person can be thanked for their comments while they pause for breath or the group as a whole can be reminded of the time limit. A disagreeable person can be handled by finding merit in the participant's suggestions, expressing agreement, then moving on, or responding to the participant's comments, not the attack. A good leader or facilitator should have methods for conducting meetings with all personality types. Additionally, the techniques discussed in this chapter can help get everyone's ideas out. If personalities start to get in the way other techniques should be tried. Vary your public participation techniques to try to get feedback from all different styles of communicators.

SAMPLE INTERVIEW QUESTIONS FOR ELDERS OR COMMUNITY MEMBERS RELATED TO SANITATION UPGRADE PLANNING:

- ◆ What do you think of this idea (explain idea/plan/alternative)?
- ◆ Do you know if this idea was tried in the past?
- ◆ Do you think that this plan (explain idea/plan/alternative) will affect the fish or wildlife? Why?
- ◆ Do you remember anything here (floods/ buried tanks/ anything that could effect the plan-Show map of community).

Cross-Cultural Communication

Sometimes it is difficult to communicate with people from outside the community and vice versa. Outsiders and community members should attempt to understand each other's cultures and work together to achieve planning goals. When beginning to work on community planning, everyone should keep in mind these guidelines:

- ◆ Each culture has its own way of viewing the world and communicating with others (See text box).
- ◆ Learn from generalizations about other cultures, but don't use those generalizations to stereotype.
- ◆ Don't assume that there is one right way (yours!) to communicate. Keep questioning your feelings about the "right way" to communicate.
- ◆ Don't assume that breakdowns in communication occur because other people are on the wrong track. Search for ways to make the communication work, rather than searching for whom should receive the blame for the breakdown.
- ◆ Listen. Try to put yourself in the other person's shoes. Especially when another person's perceptions or ideas are very different from your own, you might need to operate at the edge of your own comfort zone.
- ◆ Respect others' choices about whether to engage in communication with you. Honor their opinions about what is going on.
- ◆ Stop, hold off judgment, and try to look at the situation through the other person's glasses.
- ◆ Be prepared for a discussion of the past. Use this as an opportunity to develop an understanding of "the other's" point of view, rather than getting defensive or impatient.
- ◆ Remember that we are all shaped by many factors (ethnic background, family, education, friends) that are more complicated than any "cultural norm" or generalizations can explain.

Alaska Native

Listens a great deal
Looks for large picture
Reserved
Intuitive
Public restraint
Indirect communication
Slower paced speech
Comfortable with silence

Western European

Talks a great deal
Looks for details
Assertive
Literal/scientific
Public recognition
Direct communication
Rapid paced speech
Dislikes silence

"If you are really going to be good at what you are doing then you have got to listen to the people who you are dealing with in the communities where you are going to put those projects up. Because without that you are going to have a very frustrated village that is going to be on your case all the time and probably in a lot of instances will not be willing to work with you again."—Village Resident

Tips for facilitating through conflicts:

1. State the problem in a constructive way so that the group can work on it.
 - Describe the problem as a problem, not as someone's fault.
 - Push the group to agree on the specific decision that needs to be made, so they don't waste time on other matters.
1. Suggest ways to break the problem into workable pieces that can be dealt with separately.
1. Bring out opinions.
 - Encourage the expression of various viewpoints.
 - Call attention to strong disagreements for the group to work on creative solutions.
 - Ask people to speak only for themselves (or those they represent) and to be specific.
1. Help everyone to participate.
 - Don't allow a few participants to monopolize the discussion.
 - Recognize the need for intensive discussion and identify ways to accomplish it (e.g. break into small discussion groups to create proposals and present them to the whole group).
 - Do not allow one person to interrupt another person before he or she is finished.
- Accept ideas even if they are incomplete; encourage the group to try to complete them.
1. Keep the discussion on track.
1. Summarize what has been said.
 - Summarize feelings as well as content.
 - Record everything that is said for the group to see (use a chalkboard or flipchart).
1. Listen carefully and point out areas of agreement or hesitancy.
 - State an apparent consensus in question form and test it with the group for agreement.
 - Insist on a response, do not accept silence as consent on points of agreement.
 - Ask for specific points of disagreement and alternative proposals from those who disagree.
1. Establish and enforce time limits and breaks to avoid frustration and irritability from being tired.

--From *Dispute Resolution: A Handbook for Land Use Planners and Resource Managers* (adapted from *A Manual for Group Facilitators*, Center for Conflict Resolution, Madison, WI).

Chevak is also known as New Chevak because residents inhabited another village called Chevak before 1950. "Old" Chevak, on the north bank of the Keoklevik River, 9 miles east of Hooper Bay, was abandoned because of flooding from high storm tides. The name Chevak refers to "a connecting slough," on which "Old" Chevak was situated. In 1998, it was estimated that 741 people lived in the community.

Currently, residents haul water and use honeybuckets, and some homes have rain catchment systems. However, construction began in 1996 to provide piped water and sewer to 170 homes and to the school. Completed projects include a new landfill, a washeteria renovation, water treatment plant upgrades, and a new sewage lagoon. Other upgrades including a 150,000-gallon water storage tank, a new well, close out of the former sewage lagoon, a vacuum sewer plant, and water and sewer mains and household connections will be completed by 2001.

A consultant was hired to assist the community Chevak draft their sanitation master plan in 1993. The entire community, along with the council was involved in the planning process from the beginning. All design plans were sent to the residents, council members, and the operator for comments. Valuable input was incorporated into the final designs. That way, the community always knew what the engineers were doing and the engineers were aware of what the community wanted.

According to a Chevak resident, "Unlike other villages, I bet in Chevak those people know what is going to happen (with their plan). They know what's going on".

Lessons Learned:

- ✓ Successful sanitation planning involves the community in every step.

For More Information:**General Public Involvement:**

US Department of Transportation. 1994. Innovations in Public Involvement for Transportation Planning.

Facilitation:

Group Facilitation Web Site
<http://www.ee.ed.ac.uk/~gerard/MENG/MECD/topics.html>

Municipality of Anchorage Department of Community Planning and Development. 1998. Group Visioning Packet for the Anchorage Bowl Comprehensive Plan.

Charrettes:

Washington State Department of Transportation. What is a Charrette? <http://www.wsdot.wa.gov/TA/T2/charrette.html>

Surveys:

Rea, L.M. and R. A. Parker. 1997. Designing and Conducting Survey Research; A Comprehensive Guide. Jossey-Bass, Inc. San Francisco, CA.

Social Science Research Methods and Statistics: Resources for Teachers: <http://www.siu.edu/~hawkes/methods.html>.

Large Group Response Exercise:

US Army Corp of Engineers. Institute for Water Resources. Large Group Response Exercise.

Ken Orth, Institute for Water Resources. USACE
(703) 428-6054
email: kenneth.orth@inet.hq.usace.army.mil

Participatory Rural Appraisal (PRA):

Collaborative Decisionmaking: Community-Based Method . The World Bank Participation Sourcebook
<http://www.worldbank.org/html/edi/sourcebook/sba104.htm>

Cross Cultural Communication:

Ashton, W. 1996. Co-Operative Webs: Ways of improving the Environmental Health of Alaskan Villages. Coordinator Manual. The Delta Institute.

DuPraw, M.E. and M. Axner. 1997. Working on Common Cross-cultural Communication Challenges.
<http://www.wwcd.org/action/ampu/crosscult.html>. Topsfield Foundation.

Conflict Resolution:

Bauer, Leonard and Peter K. Watt. 1990. Dispute Resolution: A Handbook for Land Use Planners and Resource Managers. Prepared for the Oregon Department of Land Conservation and Development.

Identifying Community Issues, Goals, and Needs

In planning your sanitation system upgrades, the workgroup formed for this process (see last section) should identify and respond to the expressed specific needs of the entire community early in the process through public involvement. Your community residents and leaders should identify the sanitation issues in the community that should be resolved and establish community goals for guiding future development.

Identifying Issues

Issues are the problems facing a community. Issues identification can be one of the easier elements to accomplish in the planning process. Identifying issues is really nothing more than getting residents in your community to talk about and describe the problems they have (something people are generally readily able to do).

Public involvement is a key component to successfully identifying issues. Community issues are typically identified through surveys, informal interviews with leaders, workshops with residents, and public meetings. Residents should be asked to identify the current as well as emerging issues or problems they are facing. Residents should be asked to prioritize the issues – which ones are most important – and identify short-term and long-term problems.

The workgroup may want to have an engineer make an inspection of the existing sanitation systems to identify deficiencies and capital needs (issues) from a professional engineering perspective.

There are several questions that your community should ask when determining issues, goals, & needs.

- ✓ What is the problem? (Issues Statement)
- ✓ What do we want for the future and how will we achieve it? (Goal and Objectives)
- ✓ What do we have now? (Background Study, Inventory)
- ✓ What will change and how? (Forecasting, trends analysis)

Additionally, it is not too early to begin thinking about what will be involved with operating and maintaining a new sanitation system. The problems you may be having operating or maintaining the system you have now are important to know about as you start to think about the system you want in the future.

An important aspect to identifying issues for planning your sanitation system upgrades is that the issues that are identified should focus not only on your sanitation problems but also on more general community development and planning issues. The solutions to problems like a deteriorating runway, or high demand for new housing can have very important impacts on your future sanitation improvements.

Example Issue

“The problem is that not all households have sanitary facilities. Many homes are still using honey buckets that must be taken to the sewage lagoon for dumping by residents. This creates a public health concern for community residents as well as public officials and the problem is only getting worse as our population grows.”

Identifying and Prioritizing Needs

Needs can be thought of as the solutions to the problems. The solutions that resolve the issues (most frequently refers to capital or build solutions) make up your community's needs. For example, if the issue is "our treatment plant continues to break down." The need is "a new treatment plant or the part needed to repair it." Most frequently in planning your sanitation upgrades, needs require capital or building something that solves the problems.

Setting Goals and Objectives

A **goal** is a statement that describes an ideal future condition. It states where you are headed or where you want to be headed. Goals are broad statements designed to solve the problems that have been identified (the issues). In other words, goals are guiding statements of what the community would like to become in the future. Setting goals and defining your community's vision for the future are designed to provide answers to key questions, such as:

- ➔ Where are we headed?
- ➔ What values do we find most important?
- ➔ What kind of future do we want to create?

Community goals:

- ☐ Describe what is wanted.
- ☐ Have a single outcome.
- ☐ Should be embraced by the community.
- ☐ Should be precise and concise.
- ☐ Are important and balanced.

Example Goals

"(1) To provide sanitary sewer service to each household in the community".

"(2) To provide adequate housing for our growing population."

The answers to these question can influence and help guide your sanitation solutions. For example, if your goal is to provide adequate housing for your growing population, you will need to know where that housing will be placed, before you make decisions about your sanitation system.

An **objective** refers to some specific want that is reasonably attainable. It is specific and measurable and identifies what is going to be done to achieve the goal, when it will be done, and in some cases, who will do it. Objectives are statements that serve as a guide to action. They are something to shoot for. Identifying goals and objectives are more challenging because they tend to be more hazy and refer to the future. Nonetheless, they are important for guiding future development and therefore critical for planning your sanitation upgrades

Example Objectives

"At least 60% of all households shall be hooked up to sewer by the year 2003".

" Build a new subdivision west of town to serve 20 new homes."

Techniques for Determining Community Issues, Goals, and Needs

Public involvement is crucial to ensuring the issues are addressed properly and that the outcome (goals, objectives, and policies) is consistent with community values. Be sure to examine all the various ways to involve the public – do not be afraid to try a new technique.

Visioning is a process designed to provide answers to key questions like where the community is headed, what values its citizens find most important, and what kind of future they hope to create. It has the capacity to produce a tremendous amount of information as well as local energy and spirit. Visioning can help a community quickly move from a list of problems to a set of potential solutions.

“If you can dream it, you can do it.”

-Walt Disney

Once a community has a vision of the future, other planning efforts are often less difficult, because the community can look at the “big picture,” avoiding dealing with issues only as they

occur. Visioning helps the community plan future infrastructure systems, like sanitation upgrades, to meet expected demands. For example, if the Village Corporation is planning on building a fishing lodge (even if it will not happen for five or ten years), the sanitation system needs to be designed to accommodate expansion for future summer visitors. A group of community members should conduct a visioning session early in the community planning process. One person should lead the discussion and another should write down responses to visioning questions, like those listed above, on a large piece of paper or a blackboard. Responses to questions should be reworded and refined to be as clear as possible and essentially capture on paper the community’s consensus of what they want their future community to be like. The group should be given quiet time to think over, identify, and prioritize their responses. The community vision should be considered when addressing future community actions.

Sample Visioning Questions

What is the best aspect of (community name)? What do you like most about our community? What do you miss when you leave?

- ② What do you like least about (community name)? What is bad about (community name)? What would you like to change about (community name)?

“Wouldn’t (community name) be wonderful if we____”

ARE YOU READY TO MOVE ON?

- ☐ Has an engineer examined your system for its needs and deficiencies?
- ☐ Has the community identified planning, development, and sanitation issues?
- ☐ Has the community identified sanitation-specific community desires and needs?
- ☐ Has your community identified your community’s planning goals and objectives?
- ☐ Have you looked at the community’s ability to operate and maintain a sanitation system?

If so, you are ready to move on to collecting background information.

For More Information

Visioning:

Oregon Visions Project. 1993. A Guide To Community Visioning;
Hands-on Information for Local Communities. Oregon Visions
Project. Oregon Chapter, American Planning Association

Collecting Background Information

One of the early tasks in community planning is collecting existing background information about your community. Extensive background information provides the facts for you to make decisions regarding future development, to analyze alternatives, and to select improvements that will guide sensible growth and development in your community. From a general planning perspective, the background study is useful for identifying conditions that may influence your communities future development. For instance, information about the social, demographic, and economic conditions is essential for

“You can’t get to where you’re going until you know where you’ve been.”-Anonymous

predicting future population growth while information on the physical environment is crucial for identifying sites best suited for development. From a sanitation engineering perspective, the background study provides information on the status of your community’s facility infrastructure and establishes a baseline for determining system needs over the planning period.

Information Needed

Generally, the background study is used to collect information on both the physical and socioeconomic conditions of the community. Depending on the issues and goals identified, the background study of your community’s current circumstances may include gathering the following:

- ◆ Community Information
- ◆ Social and Economic Information
- ◆ Physical Environment and Natural Resources Information

Additionally, when drafting a sanitation plan, information on existing water and wastewater systems is essential. For example, data should be collected on the water source, water treatment plant, distribution system, wastewater collection system, and wastewater treatment. Information regarding your community’s capacity *or ability* to build, operate, and maintain the system should be determined, and the deficiencies or problems with the current system should be documented. This information will guide the sanitation system planning effort by taking everything from future demands on the system to potential sewage lagoon locations into account.

Useful Community Information*

Land Ownership and Availability

- Allotment locations
- Village or city land
- Village Corporation lands
- Regional Corporation lands
- Other land ownership

Existing and Future Locations For:

- Residential development (houses, apartments, duplexes, etc...)
- Commercial development (store, hatchery,
- Institutional development (schools, government offices, churches, clinic, community center, Headstart, etc...)
- Industrial development (water and sewer infrastructure, landfill, power plant, phone/cable lines, fire department, police department, etc...)
- Transportation Infrastructures (airport, roads, docks, trails, boardwalks, harbors, etc...)

Land Areas of Community Importance

- Hunting
- Fishing areas
- Berry picking and herb gathering areas
- Spiritual places

Land Use Patterns

- Older/newer sections of community
- Commercial residential areas
- Clustered/dispersed patterns

*Depending on your project, more or less information may be required.

Useful Physical Environment and Natural Resources Information

Climate

- Temperature
- Rain/snow fall
- Winds

Surface Hydrology and Ground Water

- Rivers/Streams
- Groundwater level
- Groundwater flow
- Availability of year round water supply
- Flooding
(how often, when, recorded depths, etc)

Fish and Wildlife Habitat

- Species of fish and wildlife
- Current and historical locations of breeding/rearing/feeding habitat

Important Land Features

- Lakes
- Rivers
- Hills
- Coastline

Geology and Soils

- Soil types and locations
- Permafrost
(type, depth, issues associated with, etc)

Vegetation and Wetlands

- Plant community type/location
- Wetland type/location
- Land disturbances or impacts

*Depending on your project, more or less information may be required.

Where to Get Needed Information

When you begin collecting background information, it may seem like a enormous task. However, organizing your efforts may help. Using the text box in the margin as a starting point, make a “working” checklist of all the information you need and where it may be obtained. The list will undoubtedly change as you gather data and new information needs and sources appear.

Community Members, especially elders, are the best place to begin collecting background information on the community’s social, economic, and environmental conditions. Traditional local knowledge should not be discounted. In many communities, little environmental or cultural information has been collected, analyzed, or reported. The only place to get information may be from your neighbor. Methods for collecting information from community members include surveys, interviews, and public meetings (Consult the ‘Public Involvement’ Chapter of this guide).

Libraries have useful information and should be used to gather background data about your community. One of the easiest ways to get information from a library is over the Internet. Alaska libraries and

information links can be accessed at <http://www.wln.com/lkalaska.htm>. Furthermore, most agencies and other nonprofit groups have libraries holding specialized information. (Consult Appendix A.) If your community does not have Internet access, library services can be received by calling the library directly and asking the REFERENCE DESK for assistance. It is helpful if you know the specific type of information (for example, subject, author, etc.) you are looking for before calling.

Internet. If your community has **Internet** access, you may want to try gathering background information by doing an Internet search directly. Using key words like the community’s name, issues, and resources, use a variety of search engines to gather information (See end of this chapter). It may be useful to recruit community members

Involve the people especially the elders in the communities because they know things that we don’t and I won’t pretend to say that I know a lot of things that they do because I don’t. I am always constantly amazed by what they know about things.

- Village Resident

Needed Social and Economic Information

Community Description

- Location
- History and Culture

Demographic Profile

- Population (ages, race, sex, etc...)
- Immigration rates

Local Government Organization Roles and Responsibilities

- Tribal Council
- City Government
- Village & Regional Corporations
- Relationships between governments

Health and Social Services Systems

- Past/current health risks/problems (information from clinic, school officials, regional/local sanitarian, etc...)
- Health workers (amount, function, etc...)
- Regional Health Corporation

Local Economy

- Local Businesses (type, successfulness, self-employment level)
- Employment (levels, year round/seasonal)
- Labor Force Characteristics (skill level, availability)
- Village Corporation Activities
- Financial performance of local government
- Financial performance of utilities
- Role of subsistence

Housing

- Number of residents per house
- Current/future housing demand

*Depending on your project, more or less information may be required.

for help with gathering information, especially youngsters, if you are unfamiliar with the Internet.

Other organizations, like regional corporations and non-profit organizations, the University of Alaska, and statewide tribal organizations, may have valuable background information on your community or region. An appendix of important organizations can be found in the back of this guide.

State and Federal Agencies may have gathered and written reports or other documents with pertinent community or regional information. Agencies should be contacted to determine whether they have background information that would help in the planning process. Agencies like Alaska Department of Transportation and Public Facilities (DOT&PF) will have community information. Some social and economic information can be gathered from the Alaska Department of Community and Regional Affairs (DCRA) and the Alaska Department of Health and Human Services (DHHS). The US Fish and Wildlife Service and the Alaska Department of Fish and Game (ADF&G) will have some of the needed physical environment and natural resources information. (See Appendix A for more agencies and contact information)

What if the Information Doesn't Exist?

Field Studies

Some information may not have been collected and some field studies may not have been completed in some communities. In that case, the community may need to complete the research itself, ask an agency to complete a study, or the community may need to hire a private consultant to do the work. Qualified, preferably experienced, personnel should do the work to ensure that the findings are real. Additionally, the work should be reviewed by a group of people that are also qualified and experienced in that type of work. Usually, a community can get technical support from agency representatives and Native corporations and organizations. Funding for completing background studies can be obtained given that there is need for the study. Agencies like PHS, EPA, and DEC Village Safe Water should be contacted to find funding sources for studies.

Many studies (for example, geotechnical surveys, wetlands surveys, geographical information systems, mapping, etc) that are essential to community planning may be difficult to understand depending on your background and experience. Technical advisors like engineers, hydrologist, and biologist, employed by agency (especially those who authored the reports), your regional health corporation, regional housing authority, may be able to help you understand studies and documents. Additionally, private consultant firms may be hired to help understand reports (See text box).

Getting Information over the Phone

- Be prepared before you call; have a list of questions, be ready to take notes. Remember this person may be busy!
- Identify yourself and the reason for contacting the agency/organization/person.
- Determine whether you are talking to the right person, if not ask for the another person.
- Ask clear concise questions. Have follow up questions. Ask whether the person knows of others who may have additional or different information.
- Ask for hard copies of reports, etc.
- Thank the person for their time.

Getting Help from Private Consultants

- ➔ Get consultant recommendations from other rural communities.
- ➔ Check references and ask around about prospective companies.
- ➔ Interview prospective companies to see if you can work together.
- ➔ Obtain several cost estimates.
- ➔ Remember the consultant is *guiding* not *leading* the effort. The community is in charge of making decisions.

Community Surveys and Assessments are a good way to evaluate environmental infrastructure like sanitation systems and landfills get an idea of the community's capacity to operate and manage environmental infrastructure. The Alaska Department of Environmental Conservation Rural Issues program has prototype assessments (Appendix?) that can provide valuable information on community sanitation needs, existing environmental infrastructure, number and kind of trained operators. Determining this information will help the community based planning effort.

Assessing Community Capacity. In any community planning process, a determination of the community's capacity *or ability* to build, operate, and maintain the planned project should be determined early. As a part of a gathering background information, the community's capacity to administrate improvements should be assessed. Many projects have been planned, designed, and implemented when later it was determined that the community did not have the capacity to actually run the system or facility. Since the community will be responsible for managing and maintaining the planned project, determining community capacity is important and should not be overlooked when gathering background information. The ability to administer and manage a sanitation improvement could provide important information on deciding what types of improvements you want to consider during your planning process and should certainly be a consideration in the alternative you ultimately select.

Assessing Community Capacity

- x **Are there people in the community that could do the work?** In some places, there are too few people to administer a project. A community should determine whether there are people in the community that could do the work.
- x **Do people have the training/expertise/skills to do the work?** In some communities, there may be people available to do the work. However, they may need special training or education to do the job effectively.
- x **Can the community support people to do the work?** A community should determine whether it has the money for training and wages, room, and time to supervise potential workers.
- x **Depending on the project, other questions**

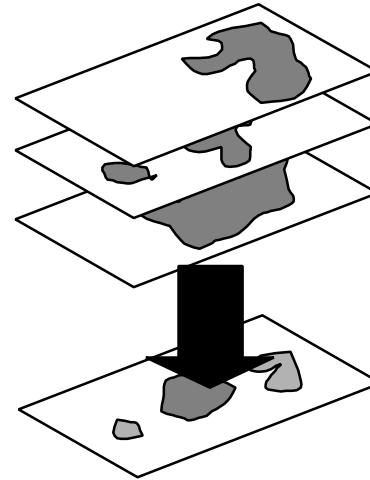
"If you can keep up routine maintenance, and you can do preventive maintenance--your system is going to last a long time. But if the operator either doesn't have the training to do the maintenance, or doesn't have the education levels to understand how to do the maintenance, then there's going to be problems."

– DEC Plan Review Engineer

Mapping Your Information

Once you have collected your data it should be organized in a manner that you can use it during the future phases of the planning effort. Organizing data can be done in a simple or more technical manner depending on your needs and knowledge. The physical and nature resources information and the community information can be drawn over the top of an aerial photo of a community on a Mylar (clear plastic) sheet. Then the map and overlay can be consulted when deciding, for example, where to route pipes through the community.

Geographic Information Systems (GIS) mapping can be completed so that all the information pertaining to the community's infrastructures (buildings) and physical and nature resources can be incorporated into a computer map. GIS is a computer system capable of holding and using data describing a community (See figure). The system can be asked questions like "where are the trails located, where are special subsistence sites located, or where is new housing planned"? However, usually someone must be hired to put the information in the system, and community members must have some training in GIS to be able to use the system effectively.



GIS analysis integrates data to form a picture your community's features.

ARE YOU READY TO MOVE ON?

- ☐ Has **all** the needed background information (community, social and economic, and physical and natural resources been collected?
- ☐ Have additional studies been completed where needed?
- ☐ Has the information been organized in a manner that you can understand and use as you move along in the planning effort?

If so, you're ready to move on to the next phase of planning your community's sanitation system upgrades.

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Lessons Learned:

Successful sanitation planning involves the community in every step.

For More Information:

Richardson, J., Taking Charge Sanitation Strategies for Rural Communities. Rural Sanitation Information Project.

Traditional Knowledge:

Hobson, G. Traditional Knowledge is Science.
<http://www.carc.org/pubs/v20no1/science.htm>

Sallenave, J. Giving Traditional Ecological Knowledge Its Rightful Place in Environmental Impact Assessments.
<http://www.carc.org/pubs/v22no1/know.htm>

Libraries

Alaska Libraries & Information Links
<http://www.wln.com/lkalaska.htm>

Alaska Statewide Library Electric Doorway (SLED)
<http://sled.alaska.edu/>

Alaska State Library
P. O. Box 110571

- Reference Desk: (907) 465-2921, Fax
- Alaska Newspaper Project: (800) 440-2919
- Interlibrary Loan and Document Delivery:
- (907) 465-2988 •
- Circulation/Periodicals Desk: (907) 465-2920 •
- Government Publications: (907) 465-2927

Internet:

Beginner Books for the Internet???

Search Engines:

Altavista <http://www.altavista.com>

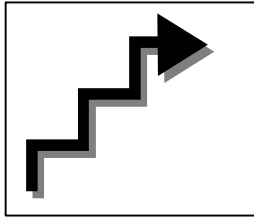
Yahoo <http://www.yahoo.com>

Infoseek <http://www.infoseek.com>

Geographic Information Systems

Environmental Systems Research Institute, Inc. 1994.
Understanding GIS; Self Study Workbook

Forecasting



Do you have enough housing stock or do you need to plan for new subdivisions? How many houses must your water source serve in five years? Ten? Twenty? How big must your sewage lagoon be in five years? Ten? Twenty?

Before you can realistically begin to develop alternatives you need to decide how much growth there will be. Making these judgments about the future is called **forecasting**. The most important factor that you need to know is the future population of the community at given points in time. From the future population projection, estimates of related needs for future housing, land use, and sanitation facilities can be made.

Information gathered during the background study is crucial because forecasting is based in large part on what has happened in your community in the past. For instance, past trends in population growth, economics, and housing density can help predict what may happen in the future.

- *Has your community been growing rapidly or slowly?*
- *Is the economy growing or are there reasonable opportunities for its growth?*

Answers to these and other questions provide a picture of what may happen in the future.

Communities are not necessarily at the mercy of past trends or future impacts that often appear beyond their control. Your community's planning goals can influence future growth. For example, your community's attitudes and desires regarding land use policy, economic development, land disposal, and transportation improvements can all impact or change the

growth scenario either up or down. Thus, your planning goals and objectives are also important to consider in forecasting for the future and can provide powerful means of directing the outcomes of your plan.

Forecasting Techniques.

There are a number of various techniques for developing forecasts of future population including extrapolation, theoretical models, and intuitive prediction. **Extrapolation**, which is essentially the extending of past trends into the future, is relatively simple, cheap, and common. **Theoretical models**, which specify linkages between variables such as economic conditions and population growth to make an informed speculation to predict outcomes in the future, are more complex. The Institute of Social and Economic Research uses a model based on oil prices and production in addition to numerous other economic variables to predict future population around the state. **Intuitive prediction** relies on the professional judgement of selected experts on what is likely to happen in the future. For example, the potential impacts of welfare reform on your community might be surmised by interviewing people from the Department of Labor or the Department of Community and Regional Affairs. Intuitive prediction is often used in conjunction with the first two techniques to temper the outcome.

Two quick and relatively easy methods for making estimates of future population. (1) Base your future growth on a population projection that someone else has already done. Has the borough or state done a population projection that covers your area or community. If so you can use intuitive prediction to estimate your population relative to the projection that has been done.

Will your population remain the same proportionally to the other projection or is there reason to believe that your population will grow faster or slower? The easiest, but not necessarily accurate assumption, is to assume that your population will remain in the same proportion as the borough or state population. (2) Another quick method of projection involves using your spreadsheet program. Develop a spreadsheet with your community's historic population numbers. Use the spreadsheet's trend functions to project your population into the future (search for trends, forecasts, or growth in the spreadsheet's help function). Use intuitive prediction to gauge the accuracy of your prediction.

The future population estimate is in turn used to make judgements about the future demand for sanitation services. Based on this population information, you can direct engineers to assess the capacity of the existing system in relation to the future demand. This assessment may identify additional needs and deficiencies with the existing system.

For example, based on the population projection in conjunction with past water usage information you might determine that the existing water storage tanks will run out of capacity in 8 to 10 years. In this way the comparing the physical capacity of your existing system with future demand can identify additional needs faced by the community that should be addressed when developing alternatives.

The outcome of the forecasting task should be a community growth projection with associated housing, land use, and sanitation demand components. In addition, the forecast will allow for the identification of system capacity needs and deficiencies relative to community growth.

ARE YOU READY TO MOVE ON?

- ☐ Have you used your social and economic to estimate your future population?
- ☐ Have you converted your population information into demand estimates for water and wastewater services?
- ☐ Have you compared your future demand with the capacity of your current infrastructure?

If so, you're ready to move on to the next phase of planning your community's sanitation system upgrades.

Developing Sanitation Alternatives

Once your community's issues, needs, goals, and objectives are identified, background information has been gathered, and forecasting of future needs has been conducted, you can begin planning future sanitation alternatives. When planning upgrades and expansion of your community's sanitation system, you should take into account engineering limitations *and* your community's goals and environmental constraints. The process proposed here blends technical engineering with your community's goals, land ownership, how suitable the system is to your community, and other planning factors.

People may agree on where they are going (goals and objectives) but see different trails for getting there. Alternatives are the different trails.

It is essential that the planning workgroup that was formed early in the community's planning process lead the "Developing Alternatives Effort". The planning workgroup is aware of community concerns and future expectations, has knowledge of the community's background information and has been involved in forecasting future demands on the sanitation system. Now the workgroup has the knowledge and expertise to create a

Berry Picking and the Developing Alternatives Process.

First, in your mind you may have as many ideas for where, when, and how you will go berries picking as there are berries.

Second, you may develop a bunch of options for where, when, and how you will go berry picking by asking yourself a number of questions:

- ✿ Where should you go (have a boat/four wheeler to get to a particular spot, will your other spot be "picked out"...)?
- ✿ When will you leave (lots of mosquitoes in the morning, Time to go in the afternoon...)?
- ✿ How will you dress (boots for wet patches, rain, will you need a coat...)?
- ✿ Who do you want to take with you (kids and dogs, alone... friends...)?

Third, after considering the above questions you may have a list of alternatives like:

- ✿ You will go berry picking up river by boat, alone this afternoon, wearing your raingear, or
- ✿ You will stay near town in the afternoon, not wear any gear (since you can get home easily), and bring the kids, or
- ✿ You will wait until the weekend to go, use the four wheeler, bring the dogs, and decide how to dress before you leave

Finally, you will decide on an exact choice by weighting your options, or *evaluate the alternatives* (discussed in next chapter).

number of alternative sanitation plans or alternatives.

There is a range of potential alternative technologies currently available for sanitation systems in rural Alaska. Knowing the different components of a system and their relative advantages and disadvantages is important to the overall understanding and selection of a system that meets your community's current and future needs. This guidebook provides a summary of the available technologies for water and wastewater system used in various regions of Alaska, including: water supply, treatment, storage and distribution, and wastewater collection, treatment and disposal (Appendix ?).



Have you involved your operator? It is likely that no one in the community knows more about your existing system and its needs and what you need to consider in your future system.

Task 1. Idea Generation

The first step of developing sanitation system alternatives is to generate ideas. The working group should use one or all the public participation activities outlined in this guide to come up with as many sanitation system upgrade ideas that seem reasonable. These processes may lead to a large number of ideas that may or may not be feasible or realistic.

However, it is a wise to list as many options as possible because:

- You are less likely to overlook the best ideas
- By considering everyone's ideas, you will gain community support for the final alternative selected.

Alternatives may be developed to use different types technologies together (for example flush/hall and pipes), or an alternatives may be focused within one type of technology but explore a range of locations or variations on the technology (for example, a pipe system with variety of routes). The type of technology and range of alternatives explored will likely vary by community depending on local circumstances.

Remember that in the first stage of developing alternatives the goal is to get as many ideas for the sanitation system as possible from the community without thought to whether it will work or not.

"Without the planning document, without having gone through that process, the community really had no idea what their best alternative was. They knew that they needed to do something, but they had no idea of exactly where to put it, or how much it would cost, or what their best alternative was. So that planning project helped them to really focus in, and be able to address their priorities."

-Regional Health Corporation Engineer.

Task 2. Alternative Formation

Once you have developed an extensive list of ideas, the workgroup should **briefly** consider each idea in order to develop a limited list of sanitation system alternatives that the community can consider in more detail. As the workgroup attempts to determine which sanitation system ideas are *feasible or reasonable* for the community, the workgroup should keep in mind a number of factors including:

- ✓ Public concerns and wants
- ✓ Forecasted population and demand for services
- ✓ Existing and future land uses location
- ✓ Engineering design criteria
- ✓ Other communities' experience with their system

The workgroup should attempt to group and organize the ideas in a manner that works for the community. The community could group similar ideas, geographical areas, most or least popular ideas, etc... You should consider grouping alternatives in such a way that the evaluation will shed light on particular aspects or issues. For example, if you want to know the relative cost differences between a pipe system and a haul system you should may want to isolate these technologies in two alternatives. If you wanted know the relative costs and impacts of expanding your community eastward as opposed to northward you would want to isolate those areas in two alternatives.

Sometimes workgroups are pressured to consider certain ideas when it is apparent that the idea would not work under any condition. There are ways to tactfully consider outlandish ideas forced upon a workgroup by influential community members or groups. For example, the workgroup can group all the outlandish ideas together for further consideration during Step 3 (when it will become apparent that the ideas are not feasible).

After the ideas have been organized into groups and considered for feasibility, a range of sanitation system alternatives should

emerge. The workgroup should attempt to draft a written description of each sanitation system alternative that will be considered in more detail in the next step. Engineers and planners can provide assistance in helping formulate and describe your ideas into alternatives.

Task 3. Alternative Evaluation

After a range of alternatives has been developed, each should be developed in more detail and evaluated against criteria deemed important by the community and sanitation engineers. If the expertise is not available in your community, technical folks like engineers, planners, and scientists may be needed to help to analyze each alternative. The analysis should help community residents and leaders select a preferred sanitation system alternative.

Developing Sanitation System Alternatives from an extensive list of community ideas involves:

- Common Sense
- Logical Thinking
- Creativity
- Political Savvy

A little tricky? Yes. Can you do it? You bet!

Community Criteria

Listed below are a number of characteristics that the workgroup and technical folks may want to take into account. However, different factors are important to different communities and more or different information may be required for your community to make a final preferred alternative decision.

- **COMMUNITY INPUT.** The workgroup should determine whether each alternative actually represents the community's concerns and ideas. For example, does the alternative avoid areas that are important to the community?
- **FUTURE FORECASTING AND VISIONING.** The workgroup should determine whether each alternative will work in the future by taking into account speculated land use and population and the community's vision of the future. For example, will the alternative be able to serve a new subdivision on the other side of town in the future, or will the system work for proposed tourism ideas?
- **COMMUNITY INFRASTRUCTURES, FACILITIES, AND LAND OWNERSHIP.** With locations of the community's buildings, infrastructure, land ownership, etc, in mind, the workgroup should consider whether each alternative would work. For example, does the alternative take into account land use and ownership, or does the system block boardwalks or trails?
- **ENVIRONMENTAL AND NATURAL RESOURCES.** The workgroup should consider whether each alternative adequately takes into account environmental factors that are important to the community and permitting agencies. Some environmental concern may be areas of previous flooding, fish and wildlife habitat, and climate.

- **SOCIAL AND ECONOMIC CONSIDERATIONS.** With current and future social and economic conditions in mind, the workgroup should determine whether each alternative would be successful. For example, how much will the system cost to the homeowner, or will the alternative affect current lifestyles.
- **OTHER COMMUNITIES' CONFIDENCE AND SATISFACTION IN THEIR SYSTEMS.** Each alternative should be examined knowing what has worked elsewhere. The workgroup may want to look at other villages' sanitation systems either by visiting or talking on the phone. If a particular system was not successful in another community, it may not be in yours.
- **Engineering Criteria** When considering whether an alternative is feasible, there are a number of technical factors that your community may not be able to assess on your own. An engineer should be consulted at this point to determine whether each alternative will work taking into account specific engineering points like:
 - SOIL SUITABILITY
 - ABILITY TO CONSTRUCT
 - SYSTEM RELIABILITY
 - SYSTEM COSTS
 - OPERATION & MAINTENANCE CONSIDERATIONS

"If you can keep up routine maintenance, and you can do preventive maintenance--your system is going to last a long time. But if the operator either doesn't have the training to do the maintenance, or doesn't have the education levels to understand how to do the maintenance, then there's going to be problems."

– DEC Plan Review Engineer

- **Community Capacity.** Now is also the time to think about the requirements of operating and maintaining one of these alternatives. What kinds of administration and management capabilities are required under each of the alternatives you are considering? You should consider such operation and maintenance factors as the reliability of your workforce, training needs, number of operators, and the sophistication of the system's operation

Chart Comparison

There are a number of tools to use to determine and present to the community how well an alternative will work. However, probably the easiest method to use is a chart. After the workgroup and engineer have come up with a list of important features that the sanitation system should have or consider, a chart can be created with the criteria or issues outlined in one column or row and each alternative listed along the other side of the chart. Below is an example of a chart that could be created.

"Scorecard" Technique for Comparing Alternatives

Present data in natural units—either quantified (in numbers) or written where necessary. This will allow your community to look at alternatives to the importance of the criteria.

The workgroup can fill in the chart either by marking with a + or – or by using a scoring system. Additionally, instead of pluses or minuses or scoring, short comments or money amounts can be written under each category. Essentially, the chart should be used for determining whether each alternative can hold up to important community and engineering criteria. The community will have a tool to be able to see the viability, acceptability, and feasibility of each alternative.

Mixing and Matching Alternatives

Sometimes a community will pick a list of alternatives to look at in detail and decide that none of the alternatives are exactly right. They may choose to use a part of one alternative and another part of another alternative. This may be a good idea in communities having difficulty reaching consensus or in communities open to all the alternatives. Either way, there is no harm in choosing the parts of each alternative that you like for a final preferred alternative.

"It's very difficult--you're asking people in a community who don't have any running water or sewer, to make a decision about the type of system that they'd like. And [you want them to make these decisions] with no background or knowledge about that, just from pictures or even from verbal descriptions, or worse yet with only written material. It's so difficult for people to picture even what the options are, let alone come to a decision." -Regional Health Corporation Engineer.

SOMETIMES THE BEST WAY TO COMPARE
ALTERNATIVES IS TO *SEE* ALTERNATIVES...

- ➔ DRAWING
- ➔ PHOTOGRAPHS
- ➔ VIDEOS
- ➔ VISITING OTHER COMMUNITIES WITH VARIOUS SYSTEMS
- ➔ TAKE A WALK-THROUGH OF THE PROPOSED PROJECT

ARE ALL TOOLS THAT CAN BE USED IN COMPARING
SANITATION SYSTEM ALTERNATIVES.

In the end

The community should have a short list of alternatives and all the information about the alternatives to make a decision on a preferred sanitation system option. However, remember that once a preferred alternative is picked it will be difficult to choose different alternative because the engineer will have started designing the system and estimating costs. The community should take as much time as is needed to come to a consensus on a preferred alternative choice. It is important that your community does not feel rushed into a decision because of funding deadlines, construction timing, or other constraints. Instead, your community should look over each alternative, weigh it against the criteria and the other alternatives, and make a choice

ARE YOU READY TO MOVE ON?

- ☐ Did the workgroup consult the community in developing a wide range of sanitation system alternatives?
- ☐ Were all the alternatives considered to determine whether they agree with community input, future visioning and forecasting, land ownership, and engineering aspects?
- ☐ Did the workgroup consult with a engineer to help with the technical aspects of considering an alternative?
- ☐ Do you have a short list of sanitation system alternatives that have been described in detail?
- ☐ Is the community ready to choose a preferred sanitation system alternative?

If so, you're ready to move on to the next phase of planning your community's sanitation system upgrades.

Ruby is located on the south bank of the Yukon River, in the Kilbuck-Kuskokwim Mountains. It is about 50 air miles east of Galena and 230 air miles west of Fairbanks. In 1998, 204 people were estimated to live in Ruby. There are 92 total housing units, and 31 of these are vacant. The majority of residents haul water from the washeteria and use outhouses or privies. Approximately 20% of homes have individual wells and septic systems with household plumbing.

An initial sanitation master plan for Ruby was started without much community involvement. After gathering some environmental and socioeconomic background information, but no information on the wants and needs of the community, an agency decided that a piped water and sewer system was the best alternative for Ruby. At a public meeting with one of the largest community turnouts ever, the agency announced that they were planning a piped system for the community. However, residents of Ruby were not happy.

Some of the people were adamant saying, “I will not be on that system!”

Following the meeting, a door to door questionnaire was developed to determine community wants. However, the survey was seen as biased toward the piped system alternative. Ruby decided it was time to work with another agency.

Ruby is currently working on another study with more public involvement to examine the wants and need of the residents in more detail.

Lessons Learned:

- ✓ Community involvement is important from the beginning of the sanitation planning process.
- ✓ Examine a variety of sanitation alternatives before deciding on one.

Selecting and Refining a Preferred Alternative

Selecting a Preferred Alternative

As stated in the previous section, the selection of a preferred alternative should be based on acceptance by your community, engineering feasibility, and the other criteria. Public participation and input from your community on the alternatives is essential to ultimately selecting your preferred alternative. Each of the alternatives should be presented with a description of how well each meets criteria established for the project. It is important that your community residents and leaders fully understand the pros and cons of each alternative before selecting an alternative.

The more successful plans clearly have more interest and involvement from local people, and the less successful plans do not. If you look down across the failures, one of the elements in every case is a lack of interest in planning.

—Regional Health Corporation Engineer

Resolution and Celebration

Once your community has come to a consensus on a preferred sanitation system alternative, make a big deal out of it. Your community has worked hard to get to this point, and it may be time for a celebration! Additionally, funding agencies may require a resolution from your

governing body on the selection of the preferred alternative prior to releasing funding for the remaining stages of your plan's development. If you are funding the plan on your own, a resolution is not required, but would provide a means of documenting your community's decision. A good way to bring the community together to celebrate all of the hard work could be a "Signing Ceremony" held when the resolution is signed.

Refining your Preferred Alternative

There are no set rules on how a sanitation project moves from a preferred alternative selection (the concept/planning phase) through preliminary engineering to the development of a Sanitation Master Plan. The process depends on the community and project. However, there are some standard procedures that engineers follow and ways that a community can be actively involved.

What Are Those Engineers Doing?

Your engineer takes a closer look at all the components of the preferred alternative like:

- ✓ Environmental constraints (soils, flooding)
- ✓ Details of the pipeline routes
- ✓ In-house plumbing

The engineer also looks at:

- ✓ Scheduling/ phasing for portions of the project
- ✓ Associated costs of portions of the project

What Should You be doing?

Although most of this phase is completed by your engineer, you should have some involvement. Ask your engineer to:

- ✓ **Come out to your community and show diagrams/figures/maps of details of the preliminary engineering findings.**
- ✓ **Walk the community through the designed system explaining everything from where the important buildings will be to what "in-house" plumbing will look like.**
- ✓ **If there are changes to the preferred alternative, ask your engineer to provide written justification for the changes.**

Preliminary Engineering

Preliminary engineering involves a more detailed examination of your preferred alternative by an engineer. You should direct your engineer to conduct preliminary engineering that refines the selected alternative to provide site location, details on capital needs and phasing, capital and operating costs, and maintenance requirements.

When preliminary engineering is completed, the preferred alternative is typically mapped and depicted using a computer-drafting program. Although this phase involves taking the preferred alternative from concept to design level, the design is not “set in stone.” The primary purpose of preliminary engineering is to come up with more detailed engineering plans in order to get cost estimates and phasing or scheduling to allow you to know how much funding you will actual need and when you will need it.

Developing a Capital Engineering Program

After preliminary engineering has been conducted you and your engineer are ready to develop a capital improvement program (CIP).

The CIP typically contains a:

1. List of capital improvements by priority.
2. Short description of the project components including cost estimates.
3. Schedule for seeking funding.
4. Construction schedule.

The CIP should group similar or related work items together into discreet and **fundable projects**. The projects should be ranked in order of importance. For each of the projects, the engineer and workgroup should estimate construction and the required operations and maintenance costs. Often the CIP contains an assessment of potential local, state, and federal funding sources. This is useful for future community budgeting because it shows how much your community will need to spend in any given year and potential state and federal funding agencies that can provide a match to

The final CIP list, containing ranked projects with costs, can be used to demonstrate to funding agencies that monies will be spent on well-planned projects with a demonstrated need.

local funding (if any). A well-developed master plan with a realistic CIP is one of the best tools a community has for securing state and federal funding.. After the alternative has been refined, you essentially have all the information needed to prepare a draft sanitation master plan available for review by residents and agencies.

TYPICAL SANITATION MASTER PLAN TABLE OF CONTENTS

- Introduction (purpose)
- Community Information (background information)
- Existing Community Sanitation Facilities
- Forecasting
- Improvement and Expansion Alternatives
- Alternatives Evaluation
- Master Plan Recommendations
- Funding Sources for Future Improvements

(See Appendix ? for more information)

Final Master Plan

At this point, all information that has been collected and developed can be bound into a draft sanitation master plan. The workgroup, appropriate permitting agencies, funding engineers, community leaders and the public should review and comment on the draft document. The final master plan should incorporate the comments gathered from this review into the final plan. There is still an opportunity to refine or change aspects of the preferred alternative, but extensive changes in alternatives means lost time and money. A resolution or letter from the decision-making body (city or tribal government) should be used to adopt the final plan. Typically, funding agencies like to see that the adopt the final plan (usually by resolution) to formalize the approval process.

ARE YOU READY TO MOVE ON?

- ☐ Has your engineer incorporated community wants and needs into preliminary engineering the preferred alternative?
- ☐ Has your engineer explained the design plans and any engineering changes to the preferred alternative?
- ☐ Have you and the engineer designed a Capital Improvements Program?
- ☐ Has all the information collected and drafted been incorporated into a Draft Sanitation Master Plan?
- ☐ Have the community and agencies examined and commented on the draft master sanitation plan?
- ☐ Have the comments been incorporated into the Final Master Sanitation Plan?
- ☐ Has the Tribal or City Council sign a resolution approving the Final Master Sanitation Plan?

If so, you're ready to move on to constructing your sanitation system upgrades.

Final Design and Construction

Final Design

The community should hire an engineer to complete the final design of the sanitation system based on the Sanitation Master Plan, CIP, and the preliminary engineering plan of the preferred alternative. A construction company or the community will be able to use final design plans to build the system. The community should ask for oral reports from the engineer and check that the plans continue to meet local needs and take into account local concerns. If the plans are changed, you should ask the engineer to provide written justification.

Before Construction

Construction of your sanitation system can begin once the final design is completed and funding is acquired. Constructing your sanitation system upgrades requires planning and management expertise. In fact, there are entire textbooks on construction management. While the community's top priority may be a constructed and operational sanitation system, you should carefully consider how construction activities will affect the community.

Some things you should be aware of before construction actually begins include:

- ✓ **Funding.** At this point, funding for planning the project is usually replaced by funding for constructing the project. Your community should keep on top of financial support opportunities for the phases of your project outlined in your Master Sanitation Plan. You should know when money will be needed, where it can be obtained, and when grant or funding applications are due. That way, the project will not be delayed due to a lack of funds. See Appendix ? for sanitation projects funding agencies.

Your community should ask two questions when deciding whether to use force accounting.

- 1.) Is the community government capable of handling the technical aspects and labor requirements of the project?
- 1.) Does the community have a committed labor force, training program, and viable support?

- ✓ **Project Management.** Depending on how much control your community wants, you can use force accounting or have the project contracted to a construction firm. Force accounting means the community serves as the contractor and constructs the project “in-house” using local labor. Contracting a construction project involves having a company come into the community and build the system, sometimes without using force accounted labor. Both systems have a number of advantages and disadvantages:

Force Accounting

Advantages

- Community has direct control over the project.
- There are opportunities to employ and train local residents.
- Community makes decisions regarding wages, hiring practices, and working hours.
- Construction quality can be monitored.
- Keeps money in the community.

Disadvantages

- There may be much pressure on local government systems (community is responsible for keeping project on schedule and within budget and it requires good payroll and accounting systems).
- Not every community has local labor, management experience, or equipment.
- Trained people must maintain construction equipment.

Contracting Construction

Advantages

- There is less impact and stress on the community government infrastructure, accounting systems, and management.
- Contract can include provisions requiring local hire.

Disadvantages

- You may have less local control and decision making power.
- Local hire may not be required.
- There may be less direct and indirect benefits to the local economy.

Often, regardless of whether the community decides on force accounting or contracting construction, the community can request that the funding agency or a consultant assist with project management.

Permits for different aspects of the project can be numerous, complex, and may take time to complete and receive approval. You should submit permits before building begins and maintain close contact with permitting agencies to assure permit approval. Permits and associated agencies are listed in Appendix ???.

During Construction

Once construction begins, remember that you should keep the community involved. You may want to hold public meetings to update the entire community on how the project is going, when construction on the current phase will be completed, and what construction is planned for the future. You may want to alert the community to possible power or water outages due to construction activities. Additionally, you should make changes to how the work is completed based on community input (i.e. work is occurring too early or late in the day and is disrupting people, trash from job site is an eye sore, kids shouldn't be allowed on job site). The community should be informed of local hire needs for the future.

The funding agency or consulting engineer should be directly involved during construction of the project. They can help the community determine whether the project is within budget, on schedule, and within the engineer's specifications.

- ✓ **Operator Training.** Your community should not wait until the system has been built to look into training your operators. By training your operators before the system is constructed, you may avoid any delays in having the system up and running. There are many opportunities for training throughout the state.
- ✓ **Establish a Utility Management Team.** The community should begin to plan for how the system will pay for itself. More information on developing a utility management team and fee structure is detailed in the next section.

After Construction-Start Up

Before the project is complete, the funding agency will perform a final inspection of the system at which time all problems should have been addressed. The system should be tested. If the project was contracted to an outside company, the community should ask about any question or concerns with the system. If the operator has not been involved in planning, designing, or constructing the system, s/he should receive an orientation to the facilities.

Finally, the "keys" to the system will be turned over to the community. It is now your system. You should inform the entire community that construction of this phase of the sanitation system is complete. Together the community has accomplished something huge, and it is time for a celebration. You may want to commemorate the "first toilet flush" or "first drink of running water" with a potluck, dance, or another type of event. To encourage your community to continue to care for the system, you may want to name the system after a respected member of the community; or the community itself

ARE YOU READY TO MOVE ON?

- ☐ Is the final design completed?
- ☐ Has funding been secured for construction of the project, and are you planning future phase funding?
- ☐ Has the community decided whether they would like to force account or contract the construction project?
- ☐ Have the proper permits been submitted and approved?
- ☐ During construction, have you kept the community informed and involved?
- ☐ Have the operators been trained?
- ☐ Have you looked at organizing a utility management team.
- ☐ Is the system up and operational?

If so, congratulations! Your system is up and running.
Don't forget about the operation and maintenance aspect of your system (next section)..

Tanana is located in Interior Alaska about two miles west of the junction of the Tanana and Yukon Rivers, 130 air miles west of Fairbanks. In 1998, the estimated population of Tanana was 317.

Water for the community is derived from three wells near the Yukon River, and four watering points are available. In 1970, 55 individual wells were drilled, but due to permafrost and poor water quality, the project essentially failed. Currently, nearly all residents haul treated water from the washeteria and use outhouses. In 1976, a piped water and sewer system was constructed to serve the school, teacher's quarters, clinic, senior center, and Tribal council building. Over 20 homes are connected to a piped sewage system and associated sewage lagoon and river outfall.

In 1986, the Tanana City Council and the Tanana Tribal Council formed Too'gha, a non-profit corporation that operates and manages the water and sewer utility and to works towards developing future sanitation infrastructure. Too'gha was formed because the two councils were having difficulties "seeing eye to eye" on planning issues related to upgrading their sanitation systems. Too'gha has successfully acquired funds to overhaul portions of the City's piped system and install arctic mains. Preliminary work on expanding the piped system west of Garden Street, a new washeteria, watering point, and water treatment plant began in 1998.

Too'gha has a board of directors made up of the Tanana City Manager, the Executive Director of Tanana Tribal Corporation, a member from the tribal and city councils, and an at-large elected member. According to local residents, the formation of Too'gha has not taken politics out of planning for and managing utilities, but it has helped bring Tanana's entities together.

"It's brought them face to face, actually across the table from each other, which I think is good", says one Tanana Resident.

Lessons Learned:

- ✓ By bringing parties together to make community decisions, disagreements can be worked out.
- ✓ Utilities can be successfully planned and managed by joining community governments in a common group.

For more information

General information on Implementing the Plan

Alaska Department of Community and Regional Affairs. 1985.
Capital Improvements Planning; A Guidebook for Rural
Alaskan Communities.

Force Accounting

Alaska Department of Community and Regional Affairs.
CDBG Grantee Introductory Handbook.

Operating and Maintaining Your Sanitation System

Usually, when people think of operating and maintaining (O&M) a sanitation system, they think of fixing leaks, changing filters, and making sure the pipes don't freeze (i.e. preventive maintenance). However, an important aspect of O&M is bookkeeping, paying employees, and collecting bills (i.e. utility management and administration). Your community should keep the sanitation system's infrastructure healthy and running *and* keep the system's finances healthy and running.

Remember: the pipes, buildings, and equipment will belong to your community, not to the state or the contractor who built it. Therefore, before your sanitation project is constructed, your community should be prepared to operate and maintain the system. To accomplish this, the community should have:

- trained staff to maintain the system's pipes and books.
- operations routines in the form of an "owner's manual" with scheduled tasks,
- accounting policies and procedures

Preventive Maintenance

Successful O&M of the system involves following the "owner's manual" from the building contractor that clearly spells out continuous cycles of preventive maintenance, along with established procedures for ensuring health and safety in utility operation. Training is available for operators from ANTHC, regional non-profit organizations, and other organizations and should be completed before the community takes over operation of the system.

Most communities do not have difficulties handling the plumbing aspects of O&M, many communities, however, have trouble dealing with bookkeeping issues. For that reason, this rest of this section focuses on utility management and administration.

The 6 Cs of Operations and Accounting

To successfully operate and manage the sanitation system, you will have to collect enough user fees to support utility operations. Additionally, you will need to manage the collected fees so that you can pay your bills and employees. Developing a system to do this can be complicated. However, the good news is that there are many technical resources for planning and implementation and you will not have to invent the management systems from scratch. Below are six critical system management strengths your community should have before your new sanitation system comes on line.

Control Cash

Your community should have control over the funds and assets of the sanitation system. Community control requires:

- Bill-approval procedures to ensure that different people share the responsibility of preparing/signing checks and approving bills and payroll records.
- Revenues, accounts receivable, debts scheduled by source, interest rate, and due dates.
- Outside monitors and auditors to examine records and assets on a yearly basis to provide independent assurance that control systems are working well.

Controlling cash presents special problems because coins and bills can be handled without leaving any record on paper. Control

procedures for cash include:

- Using cash registers with locking drawers that code sales by type and print reports.
- Temporary cash storage in a locked, secure safe after final count and before deposit.

The 6 Cs of Sanitation System Management and Administration

- Control Cash
- Create Structure
- Compare Data
- Council oversight
- Costing
- Communicate

Create Structure

Your community should create a structure that gives meaning to records. By themselves, receipts, check registers, and completed operations checklists are just pieces of paper. Even if every preventive check has been done accurately and every penny of cash has been handled with utmost care and responsibility (the 1st C), you still have to put records together. Two ways to create structure or organization are to make:

- **A chart of accounts** that lists all the utility's kinds of business by number. Every time the utility deals with a revenue, expense, new asset, or loan, entries are made in the chart of accounts to classify the transaction in relation to the whole organization.
- **Time cards** that track employees' hours and work completed. Every time an employee time card is processed, data is recorded about the duties s/he performed.

By creating an organization system, you will be able to know how much money is coming in and where it is going. A utility must decide whether to create a computerized system or paper records system. Nowadays, most communities choose to create a computer-based system backed up by filed records. Either way, training is needed to ensure competence.

Compare Data

Your community should use current and past records and data to create reports compares information for managers to use for making decisions. The reports can be used to:

- **Answer questions** about problems or changes from past experience. (Example: Why are this year's Washeteria repair expenses so high compared to last year's?)
- **Initiate a budget process** for future operations based on past records of revenues and expenses and likely changes in the future. The budgeting process is important because it is the primary tool for allowing decision-makers to monitor your utility's success.

- **Compute unit costs** of providing products or services. (Example: How much does it cost to produce one gallon of clean water or complete one sewage haul?) Unit costs provide the basic information required for setting rates.
- **Maintain employee job descriptions** to ensure that wages are spent efficiently (Example: This year, the Washeteria Operator has spent less time spent on preventive maintenance than last year. Investigation by the supervisor shows that the Operator has learned to do this work more efficiently. Should additional job duties be added? If the additional duties justify a raise, budgets will have to be revised.)

Assuming accurate input, a competent manager can get useful information by comparing data. Managers are responsible for monitoring information by using a set of reports produced automatically. If analysis reveals problems, additional reports may be designed and produced on the system to obtain more information

Council Oversight

Problems revealed in reports may be up to management to correct, if they can be resolved within the utility's current policy framework. However, if the problems involve policy considerations, relevant reports should be added to the agenda of the monthly Council meeting for consideration, along with the budget variance report (also known as "actual versus budget") which is one of the standing reports to the Council.

Council members owe a duty of **fiduciary responsibility**, a term referring to their obligation to ensure that the organization operates on a sound financial basis and benefits its users. Although the primary employee (City Manager, Village Administrator, Utility CEO, etc.) is responsible for providing information to the Council for its deliberations, his/her failure to do so properly does not diminish the Council's ultimate responsibility—after all, members have the power to replace any employee. A useful Council exercise in fiduciary responsibility is authorizing yearly review/audit by

independent outsiders, whether CPAs or representatives of regional non-profits.

Costing

The community should determine costs of user services and set rates. As every community leader knows from residents' complaints, local store prices and utility fees are always too high. While elected Council members want to satisfy consumers' demands for low fees, they also have the (sometimes seen as contrary) responsibility for long-term, efficient utility operation. Since fees must cover both operating costs and saving accounts for future repairs and

replacements, accurate costing is critical to long-term successful maintenance.

Communicate

Like any other community institution, no utility can operate without the support of its users. The best way to get that support, and to build on it, is to interact and communicate with residents on utility issues.

For more information on utilities management and administration see Appendix M.